

Appl. No. 09/879,242

Amdt. Dated June 15, 2004

Reply to Office Action of March 24, 2004

REMARKS

Reconsideration of the application is requested.

Claims 1, 4, 7, and 13 remain in the application. Claims 1-16 were rejected. Claims 1, 4, 7, and 13 have been amended. Claims 2, 3, 5, 6, 8-12, and 14-16 have been canceled to facilitate prosecution of the instant application.

Applicants appreciatively acknowledge the Examiner's withdrawal of the rejections in "Claim Rejections - 35 USC § 112" on page 2 of the above-identified final Office Action.

In "Claim Rejections - 35 U.S.C. § 102" on page 2 of the above-identified Office Action, claims 1-3 and 7-12 have been rejected as being fully anticipated by U.S. Patent No. 5,845,096 to *Munguia* (hereinafter **MUNGUIA**) under 35 U.S.C. § 102(e).

In "Claim Rejections - 35 U.S.C. § 103" on page 3 of the above-identified Office Action, claims 4-6 and 13-16 have been rejected as being obvious over **MUNGUIA** in view of U.S. Patent No. 6,473,817 to *Jeddeloh* (hereinafter **JEDDELOH**) under 35 U.S.C. § 103(a).

Appl. No. 09/879,242

Amdt. Dated June 15, 2004

Reply to Office Action of March 24, 2004

The rejections have been noted and the claims have been amended in an effort to even more clearly define the invention of the instant application. Support for the changes is found in originally filed claims 5, 8, 10, 12, 14, 15, and 16 and on pages 4, 5, and 14 of the instant application.

Before discussing the prior art in detail, it is believed that a brief review of the invention as claimed, would be helpful. Claim 1 calls for, *inter alia*, a multimaster bus system including:

a bus;

a plurality of units configured to be connected via the bus; and

a default master selected from the plurality of units according to a **dynamically modifiable default-master stipulation**, the default-master stipulation being based on **variable criteria** selected from the group consisting of:

when each unit of the plurality of units accesses the bus,

how often each unit of the plurality of units accesses the bus, and

how long each unit of the plurality of units accesses the bus.

Similar claim language is found in claim 7 of the instant application. More specifically, claims 1 and 7 indicate that

Appl. No. 09/879,242

Amdt. Dated June 15, 2004

Reply to Office Action of March 24, 2004

the selection of the default-master is based on "varying" the criteria used to select the next default-master. Prior art systems appear to limit the selection of the default to the same criteria instead of "variable criteria" as recited in claim 1 of the instant application.

Claim 13 calls for, *inter alia*, a method for operating a multimaster bus system including:

providing a bus to connect a plurality of units;

selecting a default master from the plurality of units according to a **dynamically modified default-master** stipulation that selects, based on an analysis selected from the group consisting of an **analysis of an actual program cycle** in a program-controlled unit needing bus access and an **analysis of an expected program cycle** in the program-controlled unit, the default master from the group consisting of:

a particular one of the plurality of units expected to need to access the bus frequently, and

a particular one of the plurality of units expected to need to access the bus rapidly.

Similar language is present in claim 4 of the instant application. More specifically, claims 4 and 13 call for selecting a default master according to a "dynamically modified" default-master stipulation based on analysis of an actual program cycle and an analysis of an expected program cycle in the program-controlled unit.

Appl. No. 09/879,342

Amdt. Dated June 15, 2004

Reply to Office Action of March 24, 2004

The **MUNGUIA** reference discloses a system and method for determining upon which peripheral component to "park" the PCI bus or similar shared multi-master bus. The **MUNGUIA** system does not merely grant access to the PCI bus to the last peripheral component to have accessed the PCI, but applies an arbitration system based on **fixed criteria** that is adaptive according to **requests** by each of the peripheral components for access to the PCI bus. More specifically, one embodiment of **MUNGUIA** grants the peripheral component **which requests** access to the PCI bus most often access to the PCI bus, when no other peripheral component is **requesting** access to the PCI bus (Col. 2, Lines 34-62). In this manner the **MUNGUIA** reference "parks the PCI bus on the peripheral component which has, in the past, **requested** access to the PCI bus most often" (*emphasis added* Col. 2, Line 39-44).

While the **MUNGUIA** system applies an adaptive arbitration system **based on requests** by each component, the criteria and priority of the criteria used to make the adaptations for the system remain constant. Thus, in one configuration of **MUNGUIA**, if the components make the same requests the outcome will always be the same, because the criteria are the same. In a system using variable criteria, different guidelines are given more or less weight over time. This results in variable outcomes for the same requests.

Appl. No. 09/879,242

Amdt. Dated June 15, 2004

Reply to Office Action of March 24, 2004

Moreover, the **MUNGUIA** system does not select a **dynamically modified default-master** based on an analysis selected from the group consisting of an **analysis of an actual program cycle** in a program-controlled unit that needs bus access and an **analysis of an expected program cycle**.

In contrast, the instant application selects the default master based on criteria that are based upon the **analysis of an actual program cycle and an expected program cycle** as recited in claims 4 and 13. The analysis between actual use and expected use of a program cycle allows for a more accurate consideration of bus conditions before selecting the bus master.

Clearly, **MUNGUIA** does not show a default master selected from the plurality of units according to a **dynamically modifiable default-master stipulation** that is based upon **variable criteria** as recited in claim 1 or **varying** the criteria in claim 7 of the instant application.

The **JEDDELOH** reference discloses a bus arbitration method that regulates access to a common bus by a plurality of requesting devices according to a priority rank, NOT "selecting a default-master ... according to a default-master stipulation" as recited in claims. More specifically, the

Appl. No. 09/879,242

Amdt. Dated June 15, 2004

Reply to Office Action of March 24, 2004

system described in **JEDDELOH** includes consideration of a weighted bandwidth in assigning the priority rank to the requesting devices. "In addition to data transfer speed, the desired weighted bandwidth may also reflect the data transfer size, number of requests or latency requirements associated with the device or a combination of these and other factors" (Col. 4, lines 27-30). In this manner, the priority rank is used to grant a requesting device access to the bus. For example, the **JEDDELOH** reference states:

When multiple bus mastering devices 56A-56N **request** access to the bus at the same time, the arbiter logic 52 uses the priority rank of each device to determine which of the bus mastering devices shall access the bus 54. Once **access to the bus 54 is granted to the requesting device with the highest priority rank**, the selected device **executes one bus transfer and relinquishes control of the bus 54**. (Col. 4, Lines 43-52).

As such, the device with the highest priority rank as described in **JEDDELOH** clearly does not function as a default master. Nor does **JEDDELOH** indicate "selecting a default master ... according to a dynamically modified default-master stipulation" as recited in claim 13. Upon selection of "**the requesting device with the highest priority rank**," the system described in **JEDDELOH** does NOT regard the selected device as a default master. Rather **JEDDELOH** clearly states that the

Appl. No. 09/879,242

Amdt. Dated June 15, 2004

Reply to Office Action of March 24, 2004

selected device will execute "one bus transfer" and relinquish control of the bus.

Clearly, **JEDDELOH** does not select "a default master according to a dynamically modified default-master stipulation" as recited in claim 13. Moreover, **JEDDELOH** does NOT select the default master according to a dynamically modifiable default-master stipulation that is based on analysis of an actual and an expected program cycle of the program-controlled unit as recite in claims 4 and 13 of the instant application.

Rather **JEDDELOH** determines which bus-mastering device should access the bus according to the priority rank and weighted bandwidth for each bus-mastering device. Thus, the devices 56A-56N are not the same as the "default master selected ... according to a dynamically modifiable default-master stipulation" as recited in claims 4 and 13 of the instant application.

It is accordingly believed to be clear that none of the references, whether taken alone or in any combination, either show or suggest the features of claims 1, 4, 7, or 13. Claims 1, 4, 7, and 13 are, therefore, believed to be patentable over the art.

Appl. No. 09/879,242

Amdt. Dated June 15, 2004

Reply to Office Action of March 24, 2004

In Summary, **MUNGULA, JEDDELOH**, or any combination thereof do not teach or suggest the use of variable criteria to select the default master. Nor do the cited references show that the stipulation uses analysis of an actual program cycle and an expected program cycle to select the default master.

In view of the foregoing, reconsideration and allowance of claims 1, 4, 7, and 13 are solicited.

In the event the Examiner should still find any of the remaining claims to be unpatentable, counsel would appreciate receiving a telephone call so that, if possible, patentable language can be worked out. In the alternative, the entry of the amendment is requested, as it is believed to place the application in better condition for appeal, without requiring extension of the field of search.

If an extension of time is required, petition for extension is herewith made. Any extension fee associated therewith should be charged to the Deposit Account of Lerner and Greenberg, P.A., No. 12-1099.

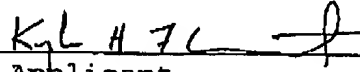
Please charge any other fees that might be due with respect to Sections 1.16 and 1.17 to the Deposit Account of Lerner and Greenberg, P.A., No. 12-1099.

Appl. No. 09/879,242

Amdt. Dated June 15, 2004

Reply to Office Action of March 24, 2004

Respectfully submitted,



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